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**DATA FROM VIRGINIA-MARYLAND COOPERATIVE FISH
TRAWL SURVEYS IN CHESAPEAKE BAY - 1957 AND 1958**

**VIRGINIA INSTITUTE OF MARINE SCIENCE
SPECIAL SCIENTIFIC REPORT NO. 42**

1963

VIRGINIA INSTITUTE OF MARINE SCIENCE
GLOUCESTER POINT, VIRGINIA

DATA FROM VIRGINIA-MARYLAND COOPERATIVE FISH
TRAWL SURVEYS IN CHESAPEAKE BAY - 1957 AND 1958

William H. Massmann
and
Romeo J. Mansueti

SPECIAL SCIENTIFIC REPORT NO. 42

W. J. Hargis, Jr.
Director

September 1963

DATA FROM VIRGINIA-MARYLAND COOPERATIVE FISH
TRAWL SURVEYS IN CHESAPEAKE BAY - 1957 AND 1958

As a cooperative study conducted by the Virginia Institute of Marine Science and the Chesapeake Biological Laboratory, four trawl survey cruises were made from the mouth to the head of Chesapeake Bay. These cruises were planned to determine seasonal patterns of fish distribution, and to compare the distributions of fishes in Chesapeake Bay as a whole with the distribution in southern Chesapeake Bay and the York and Pamunkey rivers (Massmann, 1962). Data including surface and bottom water temperatures and salinities, species and numbers of each species captured, and their length frequencies are listed in this report.

Four cruises were made aboard the R/V Pathfinder - September, 1957, and January, April, and July, 1958. A total of 24 stations located at approximately 7-mile intervals from the mouth to the head of the bay were occupied on the September, April, and July cruises. In January the northern part of the bay was frozen ; therefore, only 22 stations were occupied. At each station surface and bottom water temperatures and salinities were measured and a 15-minute haul was made with a 30-foot otter trawl. Fishes were identified and measured and in some cases scale samples were taken. Sampling procedures were identical to those outlined by Massmann et al. (1958).

Station locations and depths are listed in Table 1. Water temperatures, salinities, fishes captured and length frequencies of subsamples of the fishes taken during the September 1957 cruise are

listed in Tables 2-4; for the January 1958 cruise in Tables 5-7; for the April 1958 cruise in Tables 8-10; and for the July 1958 cruise in Tables 11-13.

A total of 13,774 fishes of 58 species were captured. In general, the distribution of fishes and their lengths approximated the distribution and lengths of fishes captured during cruises in lower Chesapeake Bay and the York and Pamunkey rivers. Data collected during these joint efforts have been published by Mansueti (1960: 117-8; 1961:29).

The authors gratefully acknowledge assistance given in field work by J. Muncy and G. Butz of Chesapeake Biological Laboratory and A. Pacheco, J. Whitcomb, and C. Richards of the Virginia Institute of Marine Science.

William H. Massmann
Romeo J. Mansueti *

* Deceased June, 1963

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- Massmann, William H. 1962. Water temperatures, salinities, and fishes collected during trawl surveys of Chesapeake Bay and York and Pamunkey rivers, 1956-1959. Va. Inst. of Mar. Sci., Spec. Sci. Rept. No. 27.
- Massmann, William H., J. P. Whitcomb, and A. L. Pacheco. 1958. Distribution and abundance of gray weakfish in the York River system, Virginia. Trans. N. Amer. Wildl. Conf. 23: 361-369.

TABLE 1. Station locations and depths for Virginia-Maryland cooperative trawl surveys in Chesapeake Bay during September, 1957 and January, April and July 1958

Station designation	N. o	Location		W. o	Long. '	Depth ft.
		Lat. '				
1	37	01		76	03	50
2	37	07		76	08	45
3	37	14		76	09	35
4	37	20		76	07	40
5	37	27		76	08	40
6	37	34		76	09	40
7	37	41		76	07	40
8	37	46		76	11	100
9	37	53		76	09	90
10	37	59		76	12	50
11	38	06		76	14	100
12	38	13		76	18	45
13	38	21		76	20	55
14	38	27		76	25	50
15	38	33		76	26	75
16	38	40		76	24	50
17	38	47		76	25	90
18	38	54		76	25	50
19	39	01		76	22	50
20	39	08		76	19	50
21	39	13		76	15	50
22	39	20		76	12	30
23	39	24		76	04	20
24	39	30		76	00	18

TABLE 2. Surface and bottom water temperatures and salinities
for Chesapeake Bay trawl survey - September 16-18, 1957.

Station	Temperature °C		Salinity o/oo	
	surface	bottom	surface	bottom
1	25.0	24.0	29.3	31.5
2	25.4	25.2	26.3	28.4
3	26.0	26.0	26.3	26.7
4	26.0	26.0	23.9	26.7
5	26.0	26.0	23.0	24.4
6	26.0	26.0	21.1	23.3
7	26.4	26.6	20.7	21.2
8	26.2	26.0	19.8	19.3
9	26.0	25.8	18.2	20.5
10	26.0	25.5	17.1	21.8
11	26.0	25.4	17.9	21.2
12	26.0	25.0	17.9	21.4
13	25.8	25.0	17.2	21.4
14	25.2	25.0	16.7	17.0
15	25.2	24.8	16.7	21.9
16	25.2	25.0	16.7	17.0
17	25.2	25.0	16.5	18.1
18	25.0	24.4	15.4	15.8
19	24.0	24.6	13.1	16.9
20	24.6	24.6	14.2	17.2
21	24.4	25.0	13.7	14.2
22	24.2	24.6	7.2	10.1
23	24.0	24.4	5.5	6.7
24	24.2	24.8	2.9	3.3

TABLE 3. Fishes collected in four 15-minute tows of 30-foot otter trawl at stations located from the mouth to the head of Chesapeake Bay September 16-18, 1957.

Species	Station						Total
	1-4	5-8	9-12	13-16	17-20	21-24	
<u>Carcharinus milberti</u>		2					2
<u>Raja eglanteria</u>	1						1
<u>Dasyatis sayi</u>	1						1
<u>Myliobatis freminvilli</u>	2						2
<u>Alosa aestivalis</u>						1	1
<u>Alosa pseudoharengus</u>					61	21	82
<u>Alosa sapidissima</u>						6	6
<u>Brevoortia tyrannus</u>					6	12	18
<u>Anchoa hepsetus</u>	129	26					155
<u>Anchoa mitchilli</u>	589	846	12	131	132	184	1,894
<u>Ictalurus catus</u>						13	13
<u>Ictalurus nebulosus</u>						2	2
<u>Ictalurus punctatus</u>						34	34
<u>Anguilla rostrata</u>					2	4	6
<u>Centropristes striatus</u>	3						3
<u>Roccus americanus</u>					3	668	671
<u>Roccus saxatilis</u>						2	2
<u>Perca flavescens</u>						1	1
<u>Pomatomus saltatrix</u>			1				1
<u>Orthopristis chrysopterus</u>	1						1
<u>Cynoscion regalis</u>	60	171	237	66	69	26	629
<u>Bairdiella chrysura</u>	1	19	314			29	363
<u>Leiostomus xanthurus</u>	10	20	103	11	110	28	282
<u>Menticirrhus americanus</u>	2		1				3
<u>Micropogon undulatus</u>	21	11	21	5	2		60
<u>Stenotomus chrysops</u>	167						167
<u>Gobiosoma ginsburgi</u>	1						1
<u>Prionotus carolinus</u>			1				1
<u>Peprilus alepidotus</u>	2		1		14		17
<u>Poronotus triacanthus</u>	84	39	1	28			152
<u>Etropus microstomus</u>	2						2
<u>Paralichthys dentatus</u>	4	2	1		1		8
<u>Scophthalmus aquosus</u>	1						1
<u>Trinectes maculatus</u>	2	6	14		15	598	635
<u>Sphaeroides maculatus</u>		1	1				2
<u>Opsanus tau</u>		1	2	1	6		10
TOTAL							5,229

TABLE 4. Length frequencies of fishes trawled during Chesapeake Bay cooperative trawl cruise - September 1957*

	<u>Alosa pseudo-</u> <u>harengus</u>	<u>Brevoortia</u> <u>tyrannus</u>	<u>Anchoa</u> <u> hepsetus</u>	<u>Anchoa</u> <u> mitchilli</u>	<u>Ictalurus</u> <u> catus</u>	<u>Ictalurus</u> <u> punctatus</u>	<u>Roccus</u> <u> americanus</u>	<u>Bairdiella</u> <u> chrysura</u>	<u>Cynoscion</u> <u> regalis</u>
20									
25				4					
30				3				1	
35				3					2
40				14					1
45				30					6
50				50					10
55				76					16
60				122				1	14
65				162			1	1	10
70				94				1	12
75				27			3		11
80	1			16			2	2	9
85			6				1	1	14
90	1		1						10
95			18				11	3	10
100			30				15	3	12
5		1	35				5	5	15
10		1	43				3	16	11
15			17				2	7	15
20		4	3					15	9
25	1		2					10	18
30	1							6	16
35	12	2						4	16
40	22						1		19
45	23	1			1		8		24
50	10					1	7		20
55	2				1	1	15	4	17
60	1	2					15	8	22
65					1	1	14	15	22
70		1			1	1	15	19	16
75							8	6	12
80		2			1		5	12	3
85		2			2		4	4	4
90					4		3	2	4
95							1	7	
200		1				2	1	5	6
5						3	1		9
10						4	1	1	23
15						1			15
20		1				1			16
25						3			15
Total	79	18*	155	601	11	18*	142	159	484*

Table 4 (Cont'd)

	<u>Leiostomus</u> <u>xanthurus</u>	<u>Micropogon</u> <u>undulatus</u>	<u>Stenotomus</u> <u>chrysops</u>	<u>Peprilus</u> <u>alepidotus</u>	<u>Poronotus</u> <u>triaeanthus</u>	<u>Trinectes</u> <u>maculatus</u>
20						
25						
30				2		
35				2		
40				4		
45				5		
50				12		
55				8		
60				3		
65				1	1	
70				2	2	7
75				1		2
80					5	3
85				1	20	12
90				2	25	14
95				1	14	20
100			1	1	5	27
5			8	1	12	38
10			7	2	6	21
15			22		1	17
20	1		29		2	18
25	2		17		1	9
30	6		19			17
35	7		1		1	6
40	17				2	2
45	8				2	4
50	6				3	2
55	4	1			3	1
60	7	1			1	2
65	5	4			2	1
70	12	4			5	1
75	21	2				2
80	31	2			1	
85	45	2				
90	42	6				
95	24	6				
200	24	6				
5	14	11				
10	7	7				
15	1	5				
20		3				
25	1	1				
TOTAL	285	61	104	48	114	226

Table 4 (Cont'd)

* Listed here are lengths of fishes too large to be included in the table above and specimens captured in small numbers. Length of fish is given in mm and the number of individuals captured, if more than one, appear in parentheses.

<u>Carcharinus milberti</u>	668
<u>Raja eglanteria</u>	565
<u>Myliobatis freminvilli</u>	622
<u>Alosa aestivalis</u>	240
<u>Alosa sapidissima</u>	75(2), 80(2), 85(2), 100
<u>Brevoortia tyrannus</u>	250
<u>Ictalurus punctatus</u>	235(2), 240(2), 255(3), 260(2), 265(3), 275, 355 385
<u>Anguilla rostrata</u>	305, 310, 350, 385, 425, 535
<u>Roccus saxatilis</u>	90, 100, 130, 140, 155, 160
<u>Centropristes striatus</u>	55, 130, 185
<u>Perca flavescens</u>	125
<u>Pomatomus saltatrix</u>	335
<u>Orthopristis chrysopterus</u>	170
<u>Cynoscion regalis</u>	239(9), 235(2), 240(4), 245(5), 250(2), 255(4), 260(4), 265(5), 270(4), 275(3), 280, 285, 320, 335, 340, 425
<u>Menticirrhus americanus</u>	105, 160, 238
<u>Etropus microstomus</u>	70(2)
<u>Paralichthys dentatus</u>	195, 235, 270, 385, 455
<u>Scophthalmus aquosus</u>	180
<u>Sphaeroides maculatus</u>	65, 120
<u>Opsanus tau</u>	50, 90, 95, 100, 105, 120, 135, 145(2), 160

TABLE 5. Surface and bottom water temperatures and salinities for Chesapeake Bay trawl survey - January 6-9, 1958 *.

Station	Temperature °C		Salinity o/oo	
	surface	bottom	surface	bottom
1	5.8	5.8	29.6	30.6
2	5.0	5.2	23.0	29.6
3	5.0	5.2	23.2	25.5
4	5.0	4.8	21.9	25.8
5	4.8	5.0	21.2	23.4
6	4.8	5.0	21.2	23.3
7	4.9	4.5	19.0	21.8
8	3.9	4.5	18.2	21.1
9	3.2	4.0	15.6	16.1
10	3.0	4.1	16.1	18.6
11	3.2	3.8	15.6	17.2
12	3.0	3.8	15.3	17.5
13	3.2	3.4	15.5	16.7
14	3.3	3.5	15.2	15.9
15	3.4	4.8	15.1	18.3
16	3.0	3.8	15.1	16.6
17	3.6	4.8	13.4	18.2
18	3.0	4.0	13.1	16.0
19	0.5	4.2	13.1	15.3
20	0.8	3.9	12.1	16.2
21	-1.0	0.0	6.2	10.7
22	-0.5	0.5	2.7	7.4

* Stations 23 and 24 not occupied because of ice

TABLE 6. Fishes collected in four 15-minute tows of a 30-foot otter trawl at stations located from the mouth to the head of Chesapeake Bay - January 6-9, 1958

Species	Stations						Total
	1-4	5-8	9-12	13-16	17-20	21-22*	
<u>Squalus acanthias</u>	1						1
<u>Alosa aestivalis</u>	21	47	3	27	4		102
<u>Alosa pseudoharengus</u>	3	45	22	22	10		102
<u>Alosa sapidissima</u>	5	2	1	2			10
<u>Brevoortia tyrannus</u>		1	1	47	11	1	61
<u>Dorosoma cepedianum</u>						8	8
<u>Anchoa mitchilli</u>	228	37	12	6	1		284
<u>Ictalurus catus</u>						1	1
<u>Anguilla rostrata</u>		4		1			5
<u>Merluccius bilinearis</u>	1						1
<u>Urophycis regius</u>	3	1					4
<u>Apeltes quadracus</u>		1					1
<u>Syngnathus floridae</u>		1		2	1		4
<u>Syngnathus fuscus</u>	4	3	2	2			11
<u>Roccus americanus</u>				45	788	3506	4,339
<u>Roccus saxatilis</u>			2	37	191	102	332
<u>Lepomis gibbosus</u>						1	1
<u>Perca flavescens</u>						2	2
<u>Micropogon undulatus</u>		16	2	87	31		136
<u>Prionotus carolinus</u>					1		1
<u>Hypsoblennius hentzi</u>				1			1
<u>Rissola marginata</u>		1					1
<u>Menidia menidia</u>	27	20	5		4		56
<u>Etropus microstomus</u>	1						1
<u>Paralichthys dentatus</u>	1						1
<u>Pseudopleuronectes</u>							
<u>americanus</u>			1	1	5		7
<u>Trinectes maculatus</u>		18	1	14	23	75	131
<u>Symphurus plagiusa</u>	1						1
<u>Gobiesox strumosus</u>					1		1
<u>Opsanus tau</u>			1		2		3
TOTAL							5,609

*Stations 23 and 24 not occupied because of ice

TABLE 7. Length frequencies of fishes trawled during Chesapeake Bay cooperative trawl cruise - January 1958*

	<u>Alosa</u> <u>aestivalis</u>	<u>Alosa pseudo-</u> <u>harengus</u>	<u>Brevoortia</u> <u>tyrannus</u>	<u>Anchoa</u> <u>mitchilli</u>	<u>Roccus</u> <u>americanus</u>	<u>Roccus</u> <u>saxatilis</u>	<u>Micropogon</u> <u>undulatus</u>	<u>Menidia</u> <u>menidia</u>	<u>Trinectes</u> <u>maculatus</u>
25							5		
30				9			6		
35				12			19		
40				41			26		
45				44			21		2
50				34			8		
55				20			4		
60				5			8	1	
65	1			3			4	2	1
70	4		1	1		1	2	4	
75	27			2				4	1
80	32			1				6	1
85	20	1	7				2	2	5
90	8	2	4		2	2	4	9	12
95	1	6	6		2	2	7	5	7
100	2	6	8		3	3	4	10	9
5	5	8	4		3	2	7	7	8
10		4	3		17	3	9	4	18
15		17	4		13	2			11
20		22	4		22	4	1	2	16
25		21	3		18	3			5
30		5	1		9	9			2
35		4	1		7	4			2
40		1	1		5	13			2
45	1	1			6	9			1
50		1	4		1	13			
55		2	4		6	7			
60		1	1		6	7			
65		1	3		8	11	1		
70		2	2		10	14			
75					10	12			
80					14	11			
85	1				10	12			
90					9	20			
95					12	9			
200					11	11			
5			1		12	6			
10					3	8			
15					5	6			
20					2	7			
25					3	7			
Total	102	105	62	172	229*	218*	138	56	103

Table 7 (Cont'd)

* Listed here are lengths of fishes too large to be included in the table above and specimens captured in small numbers. Length of fish is given in mm and the number of individuals captured, if more than one, appear in parentheses.

<u>Squalus acanthias</u>	730
<u>Alosa sapidissima</u>	95(2), 100(3), 110(2), 115, 125(2)
<u>Dorosoma cepedianum</u>	150, 155, 165(2), 170, 180, 185, 200
<u>Ictalurus punctatus</u>	165
<u>Anguilla rostrata</u>	310, 345
<u>Merluccius bilinearis</u>	95
<u>Urophycis regius</u>	55, 70(2), 145
<u>Apeltes quadracus</u>	35
<u>Syngnathus floridae</u>	165, 170, 180, 200
<u>Syngnathus fuscus</u>	90, 100(2), 105, 110, 115, 125, 140, 165, 170, 175
<u>Roccus americanus</u>	230(2), 235, 245, 250(2), 265, 275, 285
<u>Roccus saxatilis</u>	230(4), 235(5), 240(6), 245(11), 250(10), 255(8), 260(4), 265(7), 270(3), 275(3), 280(3), 285(3), 290(2), 295(4), 300(2), 310(4), 325, 330, 335, 340, 345, 360, 375
<u>Perca flavescens</u>	125, 205
<u>Lepomis gibbosus</u>	120
<u>Prionotus carolinus</u>	180
<u>Hypsoblennius hentzi</u>	80
<u>Rissola marginata</u>	260
<u>Etropus microstomus</u>	60
<u>Paralichthys dentatus</u>	195
<u>Pseudopleuronectes americanus</u>	125, 160, 165, 170, 185, 350
<u>Symphurus plagiatus</u>	60
<u>Gobiesox strumosus</u>	45
<u>Opsanus tau</u>	35, 40, 45, 105, 120

TABLE 8. Surface and bottom water temperatures and salinities for Chesapeake Bay trawl survey - April 8 - 11, 1958

Station	Temperature °C		Salinity o/oo	
	surface	bottom	surface	bottom
1	-	-	24.8	21.9
2	-	-	20.0	22.6
3	8.5	8.5	18.6	18.6
4	-	-	17.4	20.0
5	8.0	7.5	16.0	16.1
6	-	-	16.7	16.0
7	7.5	7.8	14.5	17.2
8	8.0	7.1	12.9	18.5
9	8.0	6.8	12.2	19.1
10	7.5	7.3	13.3	16.0
11	7.0	6.8	12.8	17.2
12	7.0	7.0	12.6	13.3
13	7.8	7.0	11.5	13.1
14	7.8	6.2	10.8	16.1
15	8.0	7.0	14.7	14.4
16	8.0	7.0	11.5	14.2
17	8.5	7.0	5.6	14.7
18	9.5	6.0	3.8	14.5
19	8.0	6.0	5.8	14.7
20	8.8	8.0	1.1	8.8
21	9.0	8.5	0.3	9.7
22	-	-	0.5	0.3
23	8.0	8.2	0.3	0.6
24	7.0	7.0	0.3	0.3

TABLE 9. Fishes captured in four 15-minute tows of a 30-foot otter trawl at stations located from the mouth to the head of Chesapeake Bay - April 8-11, 1958

Species	Stations						Total
	1-4	5-8	9-12	13-16	17-20	21-24	
<u>Alosa aestivalis</u>	10	6	11		1	3	31
<u>Alosa pseudoharengus</u>	8	2	2	2	1		15
<u>Alosa sapidissima</u>			2				2
<u>Brevoortia tyrannus</u>	13	10	2	6		1	32
<u>Anchoa mitchilli</u>		3	8	5			16
<u>Anguilla rostrata</u>						16	16
<u>Carassius auratus</u>						1	1
<u>Notropis hudsonius</u>						9	9
<u>Ictalurus catus</u>						3	3
<u>Ictalurus nebulosus</u>						1	1
<u>Ictalurus punctatus</u>						84	84
<u>Merluccius bilinearis</u>	1						1
<u>Urophycis regius</u>	2		2	1			5
<u>Apeltes quadracus</u>						2	2
<u>Syngnathus fuscus</u>			4	2	2	1	9
<u>Centropristes striatus</u>	1						1
<u>Roccus americanus</u>					1	198	199
<u>Roccus saxatilis</u>				5	17		22
<u>Ambloplites rupestris</u>						1	1
<u>Lepomis gibbosus</u>						5	5
<u>Pomoxis nigromaculatus</u>						1	1
<u>Etheostoma nigrum</u>						2	2
<u>Perca flavescens</u>						68	68
<u>Tautoga onitis</u>	1						1
<u>Pseudopleuronectes americanus</u>					1		1
<u>Trinectes maculatus</u>			2		12	361	375
<u>Symphurus plagiatus</u>	1						1
<u>Opsanus tau</u>			1		1		2
TOTAL							907

TABLE 10. Length frequencies of fish trawled during Chesapeake Bay cooperative trawl cruise - April 1958*

	<u>Alosa</u> <u>aestivalis</u>	<u>Brevoortia</u> <u>tyrannus</u>	<u>Ictalurus</u> <u>punctatus</u>	<u>Roccus</u> <u>americanus</u>	<u>Roccus</u> <u>saxatilis</u>	<u>Perca</u> <u>flavescens</u>	<u>Trinectes</u> <u>maculatus</u>
25							
30							
35							1
40							8
45							13
50							6
55			1				
60							
65							2
70							4
75	1			2			9
80				5			9
85	1			3	1		20
90	3			4			8
95	1	1		3	2	1	8
100	4	1		2			8
5	7			10			15
10	3	4		8	2		16
15	4	9	1	9	1		5
20	2			6	2	1	2
25	2	1		1		4	2
30		1		4	2	6	2
35		1		3	1	4	
40	1	1				4	1
45		2		1		2	
50			1	1	1	6	
55		1		2		5	
60			1	4	1	4	
65				8		6	
70		1		5	2	7	
75				2	1	3	
80				5	2	5	
85		3		3	1	3	
90		1	2	3		1	
95			2	4	1	1	
200		2	3	2	2	1	
5		2	7	1	1	2	
10			10				
15			3		1		
20			2			1	
25			9			1	
Total	29*	31*	42*	101	24	68	139

Table 10 (Cont'd)

* Listed here are lengths of fishes too large to be included in the table above and specimens captured in small numbers. Length of fish is given in mm and the number of individuals captured, if more than one, appear in parentheses.

<u>Alosa aestivalis</u>	265, 270
<u>Alosa pseudoharengus</u>	100, 125(4), 190(2), 195, 200, 215, 250, 265, 270(2)
<u>Alosa sapidissima</u>	110, 120
<u>Brevoortia tyrannus</u>	300
<u>Anchoa mitchilli</u>	55(2), 60(4), 65(7), 70, 75
<u>Carassius auratus</u>	85
<u>Notropis hudsonius</u>	40, 50, 65, 75(2), 95, 100
<u>Ictalurus catus</u>	75, 185, 210
<u>Ictalurus nebulosus</u>	120
<u>Ictalurus punctatus</u>	230(9), 235(6), 240(3), 245, 250(3), 255(3), 260, 265(2), 270(2), 275(2), 280(4), 285, 295, 305, 310, 330, 340, 385
<u>Anguilla rostrata</u>	260, 275, 280, 285, 290, 310, 315, 320(2), 330, 340, 345
<u>Merluccius bilinearis</u>	150
<u>Urophycis regius</u>	70(2), 85, 95, 110
<u>Apeltes quadracus</u>	45
<u>Syngnathus fuscus</u>	90, 130(2), 140, 150, 165, 180
<u>Centropristes striatus</u>	75
<u>Roccus saxatilis</u>	240(2), 250(3), 260
<u>Ambloplites rupestris</u>	45
<u>Lepomis gibbosus</u>	60, 70, 100
<u>Pomoxis nigromaculatus</u>	145
<u>Etheostoma nigrum</u>	50
<u>Tautoga onitis</u>	525
<u>Scophthalmus aquosus</u>	55
<u>Pseudopleuronectes americanus</u>	185
<u>Symphurus plagiatus</u>	125
<u>Opsanus tau</u>	50, 145

TABLE 11. Surface and bottom water temperatures and salinities for
Chesapeake Bay trawl survey - July 21-23, 1958

Station	Temperature °C		Salinity o/oo	
	surface	bottom	surface	bottom
1	24.0	20.9	21.8	29.1
2	25.4	21.9	19.1	27.6
3	25.2	22.3	19.9	27.6
4	26.0	25.3	16.5	23.2
5	26.8	24.5	14.7	22.9
6	25.6	25.4	13.5	22.1
7	26.8	25.5	14.2	21.6
8	26.0	25.2	11.7	18.3
9	26.6	25.8	11.9	17.9
10	27.0	25.4	11.0	16.9
11	26.0	25.2	10.8	12.1
12	26.1	25.3	10.3	12.4
13	25.6	23.5	9.7	16.0
14	26.0	23.5	9.4	14.6
15	26.0	24.0	9.2	14.9
16	26.0	25.0	7.9	12.6
17	25.9	24.0	7.4	10.3
18	26.3	25.4	6.3	11.2
19	26.0	23.6	4.0	9.9
20	26.0	25.0	3.6	5.8
21	26.5	25.0	2.9	5.6
22	26.3	25.5	0.7	2.6
23	26.0	25.0	0.2	0.2
24	26.0	25.5	0.2	0.2

TABLE 12. Fishes captured in four 15-minute tows of a 30-foot otter trawl at stations located from the mouth to head of Chesapeake Bay - July 21-23, 1958

Species	Stations						Total
	1-4	5-8	9-12	13-16	17-20	21-24	
<u>Carcharinus milberti</u>	1	3					4
<u>Gymnura altavela</u>	1						1
<u>Alosa aestivalis</u>					4		4
<u>Alosa pseudoharengus</u>					1	124	125
<u>Alosa sapidissima</u>						8	8
<u>Brevoortia tyrannus</u>			11		2	5	18
<u>Anchoa hepsetus</u>	4	1					5
<u>Anchoa mitchilli</u>	49	123	11	1	53	26	263
<u>Cyprinus carpio</u>						1	1
<u>Notropis hudsonius</u>						14	14
<u>Ictalurus catus</u>						258	258
<u>Ictalurus punctatus</u>						52	52
<u>Anguilla rostrata</u>						19	19
<u>Hippocampus erectus</u>		2					2
<u>Centropristes striatus</u>	1						1
<u>Roccus americanus</u>					8	447	455
<u>Roccus saxatilis</u>						2	2
<u>Perca flavescens</u>						1	1
<u>Trachurus lathami</u>	1						1
<u>Bairdiella chrysura</u>	1	4	2				7
<u>Cynoscion regalis</u>	113	102	8				223
<u>Leiostomus xanthurus</u>	10	28	142				180
<u>Micropogon undulatus</u>			12				12
<u>Stenotomus chrysops</u>	16						16
<u>Prionotus carolinus</u>	1	1					2
<u>Poronotus triacanthus</u>	11	36					47
<u>Etropus microstomus</u>	3						3
<u>Paralichthys dentatus</u>		2	1				3
<u>Scophthalmus aquosus</u>		1					1
<u>Pseudopleuronectes americanus</u>	1				1		2
<u>Trinectes maculatus</u>	1	45	14		64	112	236
<u>Symphurus plagiatus</u>	1	1					2
<u>Sphaeroides maculatus</u>		2	2				4
<u>Opsanus tau</u>	1		1				2

TOTAL

1,974

TABLE 13. Length frequencies of fishes trawled during Chesapeake Bay cooperative trawl cruise - July 1958*

	<u>Alosa pseudo-</u> <u>harengus</u>	<u>Anchoa</u> <u>mitchilli</u>	<u>Ictalurus</u> <u>punctatus</u>	<u>Roccus</u> <u>americanus</u>	<u>Cynoscion</u> <u>regalis</u>	<u>Leiostomus</u> <u>xanthurus</u>	<u>Stenotomus</u> <u>chrysops</u>	<u>Poronotus</u> <u>triacanthus</u>	<u>Trinectes</u> <u>maculatus</u>
25			1	2					
30		1		1					
35									
40			1	1					
45	5								1
50	6			3					
55	7	1		13					6
60	10	15		11					18
65	38	79		5					26
70	15	84							16
75	22	67							11
80	8	14							3
85	4	2					1	1	3
90	2	1					2	4	21
95	1						1	3	35
100				1		1	2	2	15
5				2		8		6	23
10			1	9		14		10	11
15				9		23	1	4	12
20				11		22	1	5	12
25				27	1	30	6	3	5
30				53		17	1	2	5
35				47		9		2	4
40				22		5		2	1
45				13		2			1
50				6		5	1	2	2
55				14				1	1
60				10					
65			1	12	1	1			1
70			2	22	1	1			
75			1	10	2				
80			1	9	12				
85			1	4	10				
90			4	3	19				
95			3	2	37				
200			3	2	29				
5			2	1	27				
10			2	1	27				
15			4	2	10				
20			5	1	13				
25			5		11				1
TOTAL	118	264	37*	329	200*	138	16	47	234

Table 13 (Cont'd)

* Listed here are lengths of fishes too large to be included in the table above and specimens captured in small numbers. Length of fish is given in mm and the number of individuals captured, if more than one, appear in parentheses.

<u>Carcharinus milberti</u>	560, 585, 600, 630
<u>Gymnura altavela</u>	765
<u>Alosa aestivalis</u>	55, 60(3)
<u>Alosa sapidissima</u>	50(2), 55, 65(2), 70(3)
<u>Brevoortia tyrannus</u>	60, 70(4), 75(4), 80(4), 105(3), 110
<u>Anchoa hepsetus</u>	110(2), 115(2), 120
<u>Cyprinus carpio</u>	575
<u>Notropis hudsonius</u>	85(3), 90(3), 100(4), 105
<u>Ictalurus catus</u>	255, 310
<u>Ictalurus punctatus</u>	230(4), 240, 245(2), 255, 260, 265, 275, 280, 305(2), 390
<u>Anguilla rostrata</u>	275, 285, 290(2), 295(3), 300(2), 310, 315(2) 320, 325(4), 330, 335, 360, 385, 420, 430, 440, 465, 470, 475, 535, 645
<u>Hippocampus erectus</u>	80, 105
<u>Centropristes striatus</u>	140
<u>Roccus saxatilis</u>	55, 60
<u>Perca flavescens</u>	125
<u>Trachurus lathami</u>	110
<u>Bairdiella chrysura</u>	160, 170, 180, 185, 190(2), 200
<u>Cynoscion regalis</u>	230(6), 235(2), 240(3), 245(2), 250, 255, 265, 270, 280
<u>Micropogon undulatus</u>	275, 280(2), 285, 290, 300, 305, 310, 315, 335, 340
<u>Prionotus carolinus</u>	135, 165
<u>Etropus microstomus</u>	95, 105, 110
<u>Paralichthys dentatus</u>	175, 185, 190
<u>Scophthalmus aquosus</u>	170
<u>Pseudopleuronectes americanus</u>	75, 80, 90, 95, 165(2), 170, 365
<u>Symphurus plagiatus</u>	120, 170
<u>Sphaeroides maculatus</u>	50, 55(2), 65
<u>Opsanus tau</u>	140, 150, 175, 225